

1. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

Pringles wants to add 23 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

- A. About 11 percent
 - B. About 3 percent
 - C. About 12 percent
 - D. About 7 percent
 - E. None of the above
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2. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 18 liter 10 percent solution of chemical χ using two different solution percentages of chemical χ . When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 5 percent and 28 percent solutions, what was the amount she used of the 5 percent solution?

- A. 3.91liters
 - B. 9.00liters
 - C. 9.48liters
 - D. 14.09liters
 - E. There is not enough information to solve the problem.
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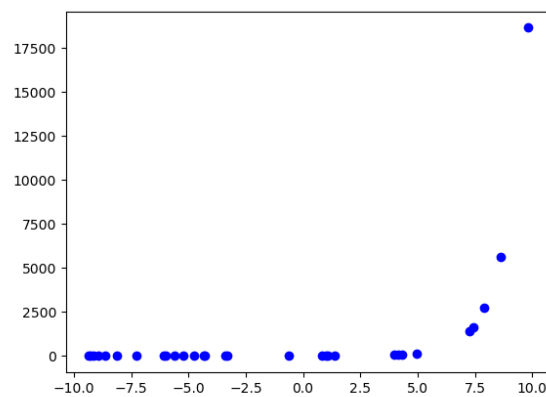
3. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 8 many cases reported, but the number of confirmed cases has doubled

every 5 days. How long will it be until there are at least 1000000 confirmed cases?

- A. About 25 days
- B. About 85 days
- C. About 23 days
- D. About 59 days
- E. There is not enough information to solve the problem.

4. Determine the appropriate model for the graph of points below.



- A. Logarithmic model
- B. Exponential model
- C. Non-linear Power model
- D. Linear model
- E. None of the above

5. For the information provided below, construct a linear model that describes her total costs, C , as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will

receive Bright Futures, which covers her tuition plus a \$1000 educational expense each year. Before college, Aubrey saved up \$5000. She knows she will need to pay \$800 in rent a month, \$60 for food a week, and \$32 in other weekly expenses.

- A. $C(x) = 1168$
- B. $C(x) = 892x$
- C. $C(x) = 1168x$
- D. $C(x) = 892$
- E. None of the above.

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6. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

Pringles wants to add 30 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

- A. About 14 percent
- B. About 15 percent
- C. About 9 percent
- D. About 3 percent
- E. None of the above

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7. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 26 liter 44 percent solution of chemical χ using two different solution percentages of chemical χ . When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 15 percent and 45 percent solutions, what was the amount she used of the 45 percent solution?

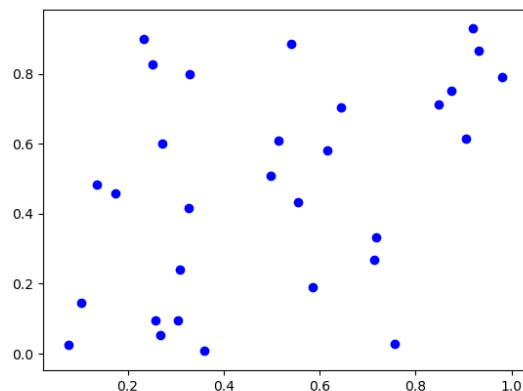
- A. 0.87*liters*
 - B. 13.00*liters*
 - C. 25.13*liters*
 - D. 14.84*liters*
 - E. There is not enough information to solve the problem.
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8. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 3 many cases reported, but the number of confirmed cases has tripled every 5 days. How long will it be until there are at least 10000 confirmed cases?

- A. About 41 days
 - B. About 21 days
 - C. About 22 days
 - D. About 37 days
 - E. There is not enough information to solve the problem.
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9. Determine the appropriate model for the graph of points below.



- A. Logarithmic model

- B. Linear model
 - C. Exponential model
 - D. Non-linear Power model
 - E. None of the above
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10. For the information provided below, construct a linear model that describes her total budget, B , as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a \$800 educational expense each year. Before college, Aubrey saved up \$5000. She knows she will need to pay \$800 in rent a month, \$80 for food a week, and \$48 in other weekly expenses.

- A. $B(x) = 4488x$
 - B. $B(x) = 4872x$
 - C. $B(x) = 5800 - 928x$
 - D. $B(x) = 5800 - 1312x$
 - E. None of the above.
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